

In the Claims

Please amend the claims as follows:

1           1. (Currently Amended) A method of prioritizing data transfer  
2 requests serviced by a centralized data transfer unit comprising  
3 the steps of:

4           receiving transfer request packets, each transfer request  
5 packet indicating a desired data transfer and a priority level  
6 within a hierarchy of a plurality of priority levels;

7           storing each received transfer request packet in a queue  
8 memory, each received transfer request packet stored in a first-in-  
9 first-out fashion within each priority level, said storing  
10 including

11                 storing each received transfer request packet in a random  
12                 access memory fashion,

13                 defining an address range within said queue memory  
14                 allocated to each priority level with a corresponding queue  
15                 bounds register,

16                 storing a next input transfer request packet for a  
17                 priority level at address within said queue memory indicated  
18                 by a corresponding queue write pointer indicating address  
19                 location,

20                 reading a next output transfer request packet for a  
21                 priority level from an address within said queue memory  
22                 indicated by a corresponding queue read pointer,

23                 dynamically defining said address range allocated to a  
24                 priority level by dynamically writing to a corresponding queue  
25                 bounds register;

26           detecting availability of free data transfer channel among a  
27 plurality of data transfer channels within said centralized data  
28 transfer processor; and

29        dispatching a next transfer request packet in said first-in-  
30        first-out fashion to the corresponding free data transfer channel.

2. (Canceled)

1        3. (Currently Amended) The method of claim 2 1, further  
2        comprising the steps of:

3        incrementing the corresponding queue write pointer upon  
4        storage of a transfer request packet in queue memory; ~~memory~~ and  
5        decrementing the corresponding queue read pointer upon  
6        transfer of a transfer request packet to a data transfer channel.

4. (Canceled)

1        5. (Currently Amended) The A method of ~~claim 1~~, further  
2        prioritizing data transfer requests serviced by a centralized data  
3        transfer unit comprising the steps of:

4        receiving transfer request packets, each transfer request  
5        packet indicating a desired data transfer and a priority level  
6        within a hierarchy of a plurality of priority levels;

7        storing each received transfer request packet in a queue  
8        memory, each received transfer request packet stored in a first-in-  
9        first-out fashion within each priority level;

10        detecting availability of free data transfer channel among a  
11        plurality of data transfer channels within said centralized data  
12        transfer processor;

13        dispatching a next transfer request packet in said first-in-  
14        first-out fashion to the corresponding free data transfer channel;

15        detecting if a channel corresponding to a priority level  
16        within the queue is empty; and

17        if a received transfer request packet ~~of~~ has a priority level  
18        detected to be empty;

19 bypassing storing said transfer request packet in said  
20 queue memory, and  
21 dispatching said transfer request packet directly to the  
22 corresponding free data transfer channel.

1 6. (Original) The method of claim 1, further comprising the  
2 steps of:

3 generating said transfer request packets at each of a  
4 plurality of transfer request nodes; and

5 upon dispatching of a transfer request packet to a free data  
6 transfer channel, sending a queue acknowledge signal to said  
7 transfer request node originating said transfer request packet.

1 7. (Currently Amended) ~~The A method of claim 1, further~~  
2 prioritizing data transfer requests serviced by a centralized data  
3 transfer unit comprising the steps of:

4 receiving transfer request packets, each transfer request  
5 packet indicating a desired data transfer and a priority level  
6 within a hierarchy of a plurality of priority levels;

7 storing each received transfer request packet in a queue  
8 memory, each received transfer request packet stored in a first-in-  
9 first-out fashion within each priority level;

10 detecting availability of free data transfer channel among a  
11 plurality of data transfer channels within said centralized data  
12 transfer processor;

13 dispatching a next transfer request packet in said first-in-  
14 first-out fashion to the corresponding free data transfer channel;

15 generating said transfer request packets at each of a  
16 plurality of transfer request nodes, said transfer request packet  
17 identifying said an originating transfer request node;

18 disabling dispatching transfer request packets originating  
19 from selected transfer request nodes; and

20 ignoring transfer request packets originating from disabled  
21 transfer request nodes.

1 8. (Currently Amended) The method of claim 8 7, wherein:  
2 said step of disabling dispatching transfer request packets  
3 originating from selected transfer request nodes includes writing  
4 at least one to a corresponding location within a request disable  
5 register.

1 9. (Currently Amended) The method of claim 9 1, wherein:  
2 the number of data transfer channels equals the number of  
3 priority levels.

1 10. (New) The method of claim 5, wherein:  
2 said step of storing each received transfer request packet in  
3 a queue memory includes  
4 storing each received transfer request packet in a random  
5 access memory fashion,  
6 defining an address range within said queue memory  
7 allocated to each priority level with a corresponding queue  
8 bounds register,  
9 storing a next input transfer request packet for a  
10 priority level at address within said queue memory indicated  
11 by a corresponding queue write pointer indicating address  
12 location, and  
13 reading a next output transfer request packet for a  
14 priority level from an address within said queue memory  
15 indicated by a corresponding queue read pointer.

1        11. (New) The method of claim 10, further comprising the  
2 steps of:

3        incrementing the corresponding queue write pointer upon  
4 storage of a transfer request packet in queue memory; memory and  
5        decrementing the corresponding queue read pointer upon  
6 transfer of a transfer request packet to a data transfer channel.

1        12. (New) The method of claim 5, further comprising the steps  
2 of:

3        generating said transfer request packets at each of a  
4 plurality of transfer request nodes; and

5        upon dispatching of a transfer request packet to a free data  
6 transfer channel, sending a queue acknowledge signal to said  
7 transfer request node originating said transfer request packet.

1        13. (New) The method of claim 5, wherein:

2        the number of data transfer channels equals the number of  
3 priority levels.

1        14. (New) The method of claim 7, wherein:

2        said step of storing each received transfer request packet in  
3 a queue memory includes

4        storing each received transfer request packet in a random  
5 access memory fashion,

6        defining an address range within said queue memory  
7 allocated to each priority level with a corresponding queue  
8 bounds register,

9        storing a next input transfer request packet for a  
10 priority level at address within said queue memory indicated  
11 by a corresponding queue write pointer indicating address  
12 location, and

13           reading a next output transfer request packet for a  
14           priority level from an address within said queue memory  
15           indicated by a corresponding queue read pointer.

1           15. (New) The method of claim 14, further comprising the  
2           steps of:

3           incrementing the corresponding queue write pointer upon  
4           storage of a transfer request packet in queue memory; memory and  
5           decrementing the corresponding queue read pointer upon  
6           transfer of a transfer request packet to a data transfer channel.

1           16. (New) The method of claim 7, further comprising the steps  
2           of:

3           generating said transfer request packets at each of a  
4           plurality of transfer request nodes; and

5           upon dispatching of a transfer request packet to a free data  
6           transfer channel, sending a queue acknowledge signal to said  
7           transfer request node originating said transfer request packet.

1           17. (New) The method of claim 7, wherein:

2           the number of data transfer channels equals the number of  
3           priority levels.

1           18. (New) The method of prioritizing data transfer requests  
2           serviced by a centralized data transfer unit comprising the steps  
3           of:

4           receiving transfer request packets, each transfer request  
5           packet indicating a desired data transfer and a priority level  
6           within a hierarchy of a plurality of priority levels;

7           storing each received transfer request packet in a queue  
8           memory, each received transfer request packet stored in a first-in-  
9           first-out fashion within each priority level;

10 detecting availability of free data transfer channel among a  
11 plurality of data transfer channels within said centralized data  
12 transfer processor;  
13 dispatching a next transfer request packet in said first-in-  
14 first-out fashion to the corresponding free data transfer channel;  
15 generating said transfer request packets at each of a  
16 plurality of transfer request nodes; and  
17 upon dispatching of a transfer request packet to a free data  
18 transfer channel, sending a queue acknowledge signal to said  
19 transfer request node originating said transfer request packet.

1 19. (New) The method of claim 18, wherein:  
2 said step of storing each received transfer request packet in  
3 a queue memory includes  
4 storing each received transfer request packet in a random  
5 access memory fashion,  
6 defining an address range within said queue memory  
7 allocated to each priority level with a corresponding queue  
8 bounds register,  
9 storing a next input transfer request packet for a  
10 priority level at address within said queue memory indicated  
11 by a corresponding queue write pointer indicating address  
12 location, and  
13 reading a next output transfer request packet for a  
14 priority level from an address within said queue memory  
15 indicated by a corresponding queue read pointer.

1 20. (New) The method of claim 19, further comprising the  
2 steps of:  
3 incrementing the corresponding queue write pointer upon  
4 storage of a transfer request packet in queue memory; memory and

5        decrementing the corresponding queue read pointer upon  
6        transfer of a transfer request packet to a data transfer channel.

1        21. (New) The method of claim 18, wherein:  
2        the number of data transfer channels equals the number of  
3        priority levels.